

Implementing the United States Preventive Services Task Force Guidelines Using an Interactive Computer System

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Background. In 1996 the United States Preventive Services Task Force (USPSTF) published the second Guide to Clinical Preventive Services.¹ The Guide reviews evidence for more than 100 interventions directed at preventing 60 different illnesses and conditions. It is difficult for physicians to remember the full array of screening, counseling, immunization and testing recommendations for each patient. The aims of this project, using a computer program called "Preventive Medicine Organizer" are: (i) to provide a way for clinicians to accurately generate a list of preventive medicine recommendations specific to an individual patient, (ii) to educate clinical providers regarding these recommendations, and (iii) to insure that patients receive optimal health promotion and disease prevention by receiving individualized preventive services.

System. The Preventive Medicine Organizer system was developed by designing and automating a decision table to generate a sequence of preventive medicine recommendations specific for a given patient. The rule set provided is based upon the USPSTF Guide,¹ however physicians may construct or revise the decision table based upon their own set of rules. The decision table is housed within an Excel spreadsheet, where the top rows contain the free form set of rules followed by a "T" or "F." The lower rows are the resultant actions, marked with an "X" which aligns with the appropriate set of true or false conditions above.

The knowledge base is a free form text file containing the patient and physician questionnaire and may also be revised by the physician without restrictions. An executable program, written in Visual Basic for the Windows environment, displays the questionnaire. The patient enters responses to the on-screen questionnaire by using a mouse or keyboard. Office personnel may also enter responses from a previously completed questionnaire. The system searches for each applicable rule and displays the set of patient specific preventive medicine recommendations on a flow sheet suitable for the office chart.

Evaluation. A pilot group of physicians, including members of the USPSTF, has responded favorably to the system noting its ease of use. Patients confirmed that the questions were uncomplicated and easy to answer. We will next evaluate the system in a controlled clinical study in which half of the residents in a clinic setting will have access to the system while the other half will provide usual preventive services. We will compare the groups with respect to numbers of recommended clinical services provided, physician satisfaction with the system and patient satisfaction with the encounters.

The system is scheduled for use at an employee health fair to assess its suitability for mass health screenings as well as to determine average number of risk factors in a group of hospital employees. In conjunction with the University of Pittsburgh School of Medicine, we plan to use the system as part of an effort to integrate and standardize the delivery of preventive services throughout the University's health care network. Finally, we are developing an Internet version of this system to link to our hospital's home page and to supplement the existing Internet information available from the Office of Disease Prevention and Health Promotion, a branch of the Department of Health and Human Services. From the web site, users will be able to generate a list of relevant preventive services to discuss with their providers or to electronically transmit to their physician's office.

Conclusion. Preventive Medicine Organizer provides clinicians with immediate access to the recommendations of the USPSTF and enables construction of a patient specific prevention flow sheet for the office chart. Use on the Internet will expand this access to the public, increasing awareness of evidence-based preventive services and fostering active participation by patients.

References

1. U.S. Preventive Services Task Force. Guide to Clinical Preventive Services, 2nd ed. Baltimore: Williams & Wilkins, 1996